

**Remarks for the "RESPONSE TO FINAL OFFICE
ACTION DATED 7/7/2005 UNDER 37 C.F.R. § 1.116"**

Applicant respectfully requests entry of the following remarks and reconsideration of the subject application. Applicant respectfully requests entry of the amendments herein. The remarks and amendments should be entered under 37 C.F.R. § 1.116 as they place the application in better form for appeal, or for resolution on the merits.

Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-4, 7-10, 16-22, 26-28, 33 and 47-55 are presently pending. Claims amended herein are 1, 3, 4, 7, 9, 16, 18-22, 28, 47, 49, 51 and 54. Claims withdrawn or cancelled herein are 5, 6, 11-15, 23-25, and 29-32. New claims added herein are none.

Formal Claim Rejections

Claim Rejections under §101

The Office rejects claims 1, 3-7, 9, and 11-16 under USC § 101, which reads:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The Office indicates that these claims are directed to non-statutory subject matter. Applicant respectfully traverses the rejections of these claims.

Serial No.: 09/614,660
Atty Docket No.: MS1-570us
RESPONSE TO FINAL OFFICE ACTION DATED
7/7/2005 UNDER 37 C.F.R. § 1.116

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1 The Office indicates the following:

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3 8. Claims 1,3-7,9, and 11-16 are rejected under 35 U.S.C. 101 because the claimed
4 invention is directed to non-statutory subject matter. The claimed subject matter fails to
5 disclose of statutory subject matter which is just software alone and of itself. The
6 applicant is suggested to amend the claims to either incorporate the subject to be
7 embodied on a computer readable medium or to require the implementation of the use
8 of technology whereby in claim 2, it is recited of encoding that requires the use of
9 technology in order to put something into computer code.

10 Applicant submits that this rejection is moot with regard to claims 5, 6, and
11 11-15 because claims 11-15 have been withdrawn herein from consideration.

12 With regard to claims 1, 3, 4, 7 and 16, Applicant submits that the subject
13 matter of each of these rejected claims is directed towards a "process" (i.e., a
14 "method"). The subject matter of each of these rejected claims is directed towards
15 a statutorily allowed process.

16 Applicant submits that method claims, like those at issue here, fall within
17 the "process" category of the four enumerated categories of patentable subject
18 matter in §101. Therefore, such method claims are statutory.

19 Accordingly, Applicant asks the Office to withdraw its rejection of these
20 claims.

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Substantive Claim Rejections

Claim Rejections under §§ 102 & 103

The Office rejects all of the pending claims under §102 and/or §103. For the reasons set forth below, the Office has not shown that cited references anticipate (under §102) the rejected claims. For the reasons set forth below, the Office has not shown made a *prima facie* case showing that the rejected claims are obvious (under §103). Accordingly, Applicant respectfully requests that the rejections be withdrawn and the case be passed along to issuance.

The Office's rejections are based upon the following references:

- **Fridrich:** *Fridrich et al.*, US Patent No. 6,094,483 (issued July 25, 2000); and/or
- **Wakasu:** *Wakasu*, US Patent No. 6,259,801 (issued 7/10/2004).

Overview of the Application

The Application describes watermarking technology for inserting and detecting watermarks in signals, such as a music clip. The watermark identifies the content producer, providing a signature that is embedded in the audio signal and cannot be removed. The watermark is designed to survive all typical kinds of processing, including compression, equalization, D/A and A/D conversion, recording on analog tape, and so forth. It is also designed to survive malicious attacks that attempt to remove or modify the watermark from the signal, including changes in time and frequency scales, pitch shifting, and cut/paste editing.

In one described implementation, a watermarking system employs chess spread-spectrum sequences (i.e., "chess watermarks") to improve the balance of

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1 positive and negative chips in the watermarking sequences. The balance is not
2 imposed in an orderly fashion, which might make the watermark sequence more
3 easily detectable to an attacker, but in a pseudo-random fashion. In that way, better
4 sequence balance is achieved while preserving its randomness for an attacker
5 without knowledge of the keys.

6 In another described implementation, a watermarking system employs an
7 energy-level trigger to determine whether to skip encoding of a portion of a
8 watermark within a given time span of an audio clip. If a large discrepancy in
9 energy levels exists over a given time frame, then the frame is not watermarked, to
10 avoid audible time-dispersion of artifacts due to spectral modifications (which are
11 similar to "pre-echo" effects in audio coding). In another described
12 implementation, a watermarking system begins encoding of a watermark at a
13 variable position after the beginning of an audio clip.

14 15 Cited References

16 The Office cites **Fridrich** as its primary references in its anticipation- and
17 obviousness-based rejections. The Office cites **Wakasu** as its secondary reference
18 in its obviousness-based rejection.

19 20 Fridrich

21 **Fridrich** describes a technology for encryption that features the steps of
22 first encrypting a message and then hiding (embedding) it within a digital image
23 carrier. This is accomplished by only slightly changing the gray levels of the
24

1 image carrier. The changes are imperceptible to the human eye, because they
2 appear as random thermal noise that is commonly present in digitized images.

3
4 Wakasu

5 Wakasu describes a technology for providing an electronic watermark data
6 inserter and detector where, even when plural electronic watermark data are
7 inserted into an image, the electronic watermark data can be inserted without
8 negation each other, and at the time of detection, the electronic watermark data
9 can be detected properly.

10 In Wakasu's method for inserting identification data (electronic watermark
11 data) according to the present invention, an image is frequency-transformed for
12 each block of $j \times k$ pixels (where j and k are natural numbers), and when the
13 electronic watermark data are inserted into the frequency components transformed,
14 the electronic watermark data are inserted for each block after the kinds of the
15 electronic watermark data to be inserted are changed, so that the electronic
16 watermark data are inserted without negation each other and detected for each
17 block.

18 More particularly, an electronic watermark insertion position table is
19 provided indicating which kind of electronic watermark data is inserted into which
20 block in an image, and an applicable electronic watermark data is inserted into the
21 area which is shown in the insertion area table. When the electronic watermark
22 data is detected, the electronic watermark extraction position table similar to that
23 when inserted is used to detect the electronic watermark data.
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1 In **Wakasu**, when a plurality of electronic watermark data are inserted into
2 an image, different electronic watermark data are inserted into for each block, so
3 that the electronic watermark data can be inserted without interference of the
4 different electronic watermark data and negation each other, and also the
5 electronic watermark data can be detected properly even when a plurality of
6 electronic watermark data are embedded.

7 8 **Anticipation Rejections**

9 10 **Based upon Fridrich**

11 The Office rejects claims 1-3, 5-12, 14-23, 25-29, 31-33 and 47-55 under
12 USC § 102(e) as being anticipated by **Fridrich**. Applicant respectfully traverses
13 the rejections of these claims. Based on the reasons given below, Applicant asks
14 the Office to withdraw its rejection of these claims.

15 More particularly, Applicant submits that in light of the amendments
16 herein, these rejected claims are not anticipated by **Fridrich**.

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Claims 1-4, 7-10, 16-22, 26-28, and 33

These claims (or their base claim from which they depend) have been amended to incorporate the concept of "absolute-chessboarding" or "absolute-un-chessboarding," which was introduced originally by claims 6, 15, 26, and 32. For example, as amended, claim 1 describes absolute-chessboarding in this manner:

...absolute-chessboarding comprises adjusting successive discrete values of the information pattern so that the successive discrete values differ from immediately adjacent discrete values...

Applicant submits that **Fridrich** does not disclose the concept of "absolute-chessboarding," as recited in these claims (1-4, 7-10, 16-22, 26-28, and 33). In its rejection of claims 6, 15, 26, and 32 (which originally introduced language directed towards absolute-chessboarding), the Office indicated the following on p. 5 of the Action:

As per claims 6,15,26,32, and 48, Fridrich et al teaches of a chaotic map (chessboard) produces a random looking image of pixels (discrete values) wherein the pixels (discrete values) are alternated by color (absolutely chessboarded)(col. 1, lines 25-35 and col. 3, lines 59-62).

Applicant respectfully disagrees with the Office's interpretation of the cited portions of **Fridrich**. The cited portions does not disclose the "pixels (discrete values) are alternated by color (absolutely chessboarded)." Instead, **Fridrich** discloses using a portion of color representation value (e.g., the least significant

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1 bit) to carry a steganographic message. However, Applicant submits that this is
2 not equivalent to absolute-chessboarding.

3 More particularly, these cited portions do not disclose absolute-
4 chessboarding as recited in these claims (e.g., "adjusting successive discrete
5 values of the information pattern so that the successive discrete values differ from
6 immediately adjacent discrete values" from claim 1). Therefore, Applicant
7 submits that **Fridrich** does not disclose "absolute-chessboarding" or "absolute-un-
8 chessboarding," as recited in these claims.

9 As shown above, **Fridrich** does not disclose all of the claimed elements
10 and features of these claims. Accordingly, Applicant asks the Office to withdraw
11 its rejection of these claims.

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by: Kasey Christie

Claim 47

As amended this claim now reads:

receiving the information pattern of multiple discrete values,
wherein each discrete value of the information pattern is represented by a
defined set of multiple consecutive blocks, wherein each consecutive
block within a defined set includes its representative discrete value;

chessboard encoding the discrete values of the information pattern
to produce chessboarded discrete values, ~~wherein chessboard encoding
comprises adjusting the discrete values in accordance with a defined
pattern so that the representative discrete values in the consecutive
blocks of at least one defined set of the multiple discrete values differ from
adjacent representative discrete values in the consecutive blocks of the
same defined set.~~

Applicant submits that **Fridrich** does not disclose "chessboard encoding"
of discrete values of an information pattern, as recited in the claims.

More particularly, **Fridrich** does not disclose "each discrete value of the
information pattern is represented by a defined set of multiple consecutive blocks,
wherein each consecutive block within a defined set includes its representative
discrete value." Furthermore, **Fridrich** does not disclose production of
chessboarded discrete values so that "the representative discrete values in the
consecutive blocks of at least one defined set of the multiple discrete values differ
from adjacent representative discrete values in the consecutive blocks of the same
defined set."

As shown above, **Fridrich** does not disclose all of the claimed elements
and features of the claim. Accordingly, Applicant asks the Office to withdraw its
rejection of this claim.

1
2 Claims 48-50

3 These claims ultimately depend upon independent claim 47. As discussed
4 above, claim 47 is allowable.

5 In addition to its own merits, each of these dependent claims is allowable
6 for the same reasons that its base claim is allowable. Applicant submits that the
7 Office withdraw the rejection of each of these dependent claims because its base
8 claim is allowable.
9

10 Claims 51

11 As amended this claim now reads:

12
13 receiving the information pattern of multiple discrete values,
14 wherein each discrete value of the information pattern is represented by a
15 defined set of multiple consecutive blocks, wherein each consecutive
16 block within a defined set includes its representative discrete value;

17 generating a pseudorandom pattern based upon a pseudorandom
18 number generator (PRNG) and a key;

19 chessboard encoding the discrete values of the information pattern
20 to produce chessboarded discrete values, wherein chessboard encoding
21 comprises adjusting ~~one or more of the discrete values~~ the representative
22 discrete values in the consecutive blocks of at least one defined set of the
23 multiple discrete values in accordance with the pseudo-randomly
24 generated pattern.
25

26 Applicant submits that Fridrich does not disclose "chessboard encoding"
of discrete values of an information pattern, as recited in the claims.

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1 More particularly, **Fridrich** does not disclose "each discrete value of the
2 information pattern is represented by a defined set of multiple consecutive blocks,
3 wherein each consecutive block within a defined set includes its representative
4 discrete value." Furthermore, **Fridrich** does not disclose production of
5 chessboarded discrete values so that "the representative discrete values in the
6 consecutive blocks of at least one defined set of the multiple discrete values in
7 accordance with the pseudo-randomly generated pattern."

8 As shown above, **Fridrich** does not disclose all of the claimed elements
9 and features of the claim. Accordingly, Applicant asks the Office to withdraw its
10 rejection of this claim.

11
12 Claims 52-55

13 These claims ultimately depend upon independent claim 51. As discussed
14 above, claim 51 is allowable.

15 In addition to its own merits, each of these dependent claims is allowable
16 for the same reasons that its base claim is allowable. Applicant submits that the
17 Office withdraw the rejection of each of these dependent claims because its base
18 claim is allowable.
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Obviousness Rejections

Lack of Prima Facie Case of Obviousness (MPEP § 2142)

Applicant disagrees with the Office's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a *prima facie* case have not been met.

Based upon Fridrich and Wakasu

The Office rejects 4, 13, 24, and 30 under USC § 103(a) as being unpatentable over Fridrich as modified by Wakasu. Applicant respectfully traverses the rejections of these claims. Applicant asks the Office to withdraw its rejection of these claims.

These claims ultimately depend upon independent claims 1, 9, 22, and/or 28. As discussed above, these claims are allowable.

In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each of these dependent claims because its base claim is allowable.

Dependent Claims

In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each dependent claim where its base claim is allowable.

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Conclusion

All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the Office is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: 9-7-05By: 

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